EMSL

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U.S. DEPARTMENT OF ENERGY

Industrial Partnerships and Access
Research Scientist/Project Manager/User perspective

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National User Facility Organization
Session 1: User Experience
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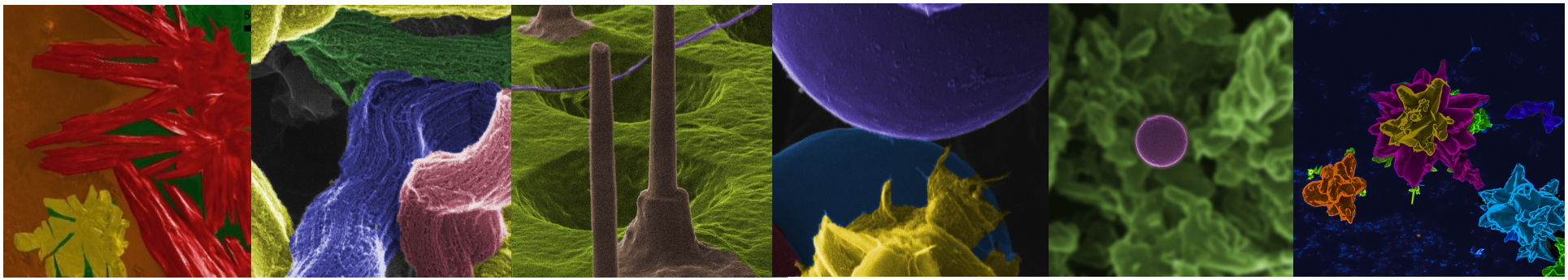
*Disclaimer

Although the information provided in this talk is based on input from a variety of industry users, the summary and opinions expressed are mine alone as a research scientist and project manager at EMSL.

Mark Engelhard



Why focus on industry?

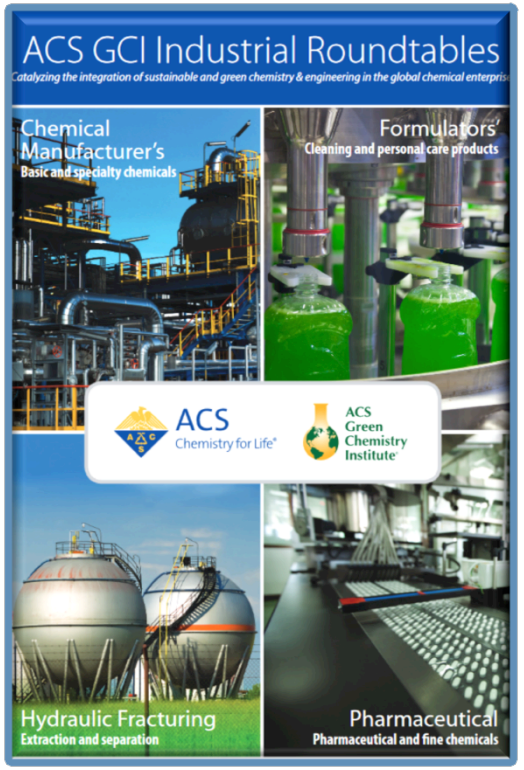
- Collaboration results provide tangible "science to solution" examples for stakeholders
  - NUFO's Science Expos emphasize deployment of discovery with societal impact in energy, environment and health
- Small investments can lead to big impact!

With your help we were able to create something really cool, very practical and very sustainable *that will continue to be a huge improvement from past dig-and-replace methods, and will save the USA and other countries vast sums of money in infrastructure ownership costs far beyond our lifetimes.* ***Thanks for supporting us when we were a penniless struggling startup. It made a big difference****…Over 30,000 feet of pipes rehabilitated; 12 jobs created; materials exported to Malaysia, Hong Kong, Singapore, China and Australia,* ***resulting in $13M+ in sales*** *with state and federal tax revenues.*

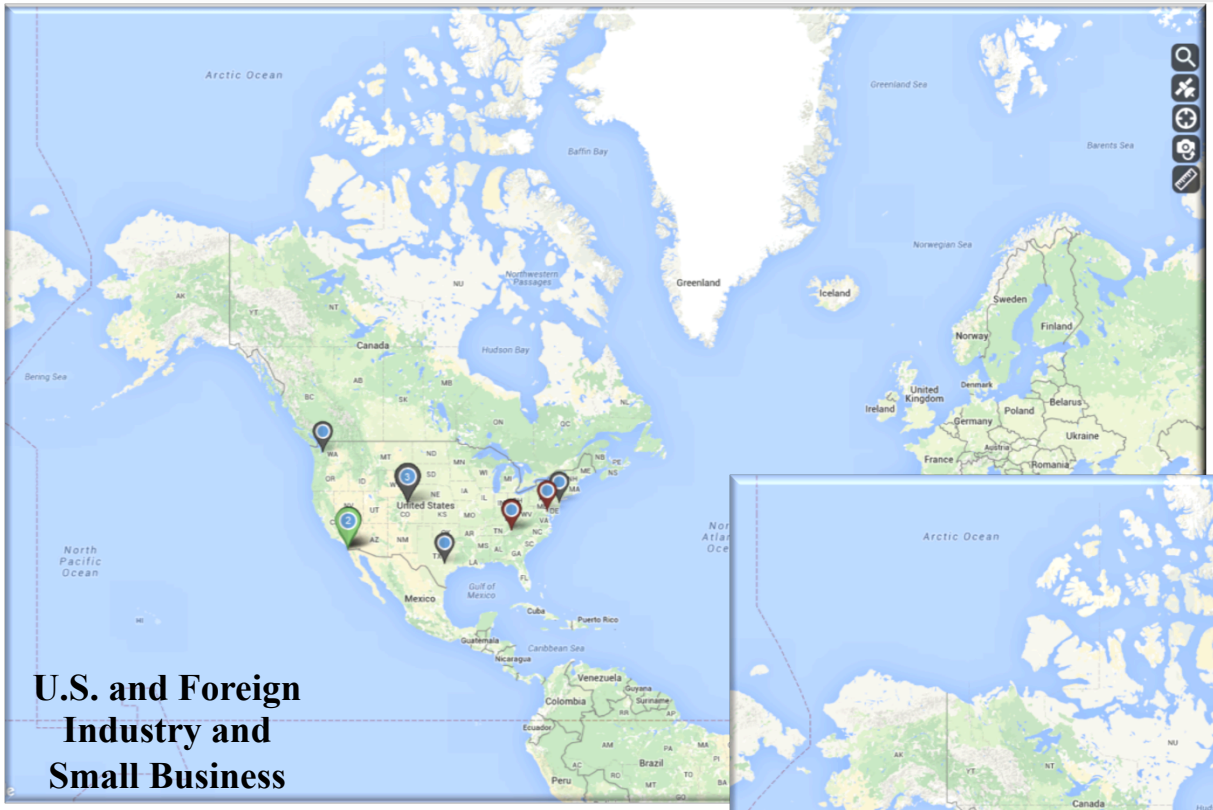
GeoTree Technologies Inc*.*
–courtesy of PNNL's Technology Assistance Program (TAP)

Why focus on industry now?

- Advisory committees/DOE reviewer feedback
  - Increase outreach and use.
- Recent opportunity to leverage ACS
  - ACS serves as neutral convener.
  - Facilitates pre-competitive or non-competitive interests/issues.
  - Supports outreach.
  - Increases awareness of labs.
  - Stops membership erosion.
- Industry use of the DOE user facilities decreasing.
  - E.g., <5% at EMSL compared to >10% ten years ago.



Office of Science
FY 2015 User Statistics by Institution Type

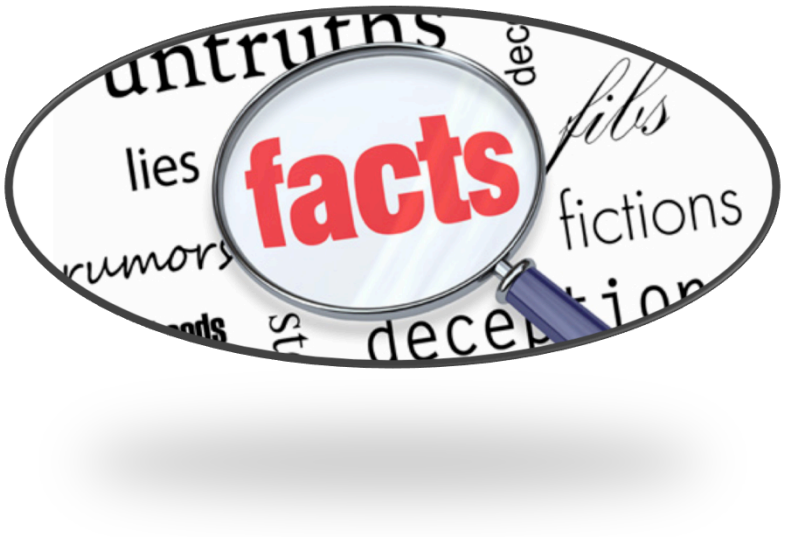


U.S. and Foreign Industry and Small Business

All Others

http://science.energy.gov/user-facilities/user-statistics/by-institution/

Fact or Fiction:
Perceived Barriers by Industry Users



- Proposal review panels focused on fundamental research.
- All use requires full cost recovery.
- Access restricted from highly subscribed instruments.
- Indemnification and IP language steals ideas.
- Contracting mechanisms slow.
- Facility fees above market.
- Open facilities with foreign nationals a concern for some industries.

Proposal Review Panels Unsupportive

- Non-proprietary Review Panels
  - Hard to get in the door.
  - Panels are risk adverse.
  - Focused on large projects benefiting a scientific community.
  - Application-based projects aren't valued.
  - Feedback for new applicants is vague.

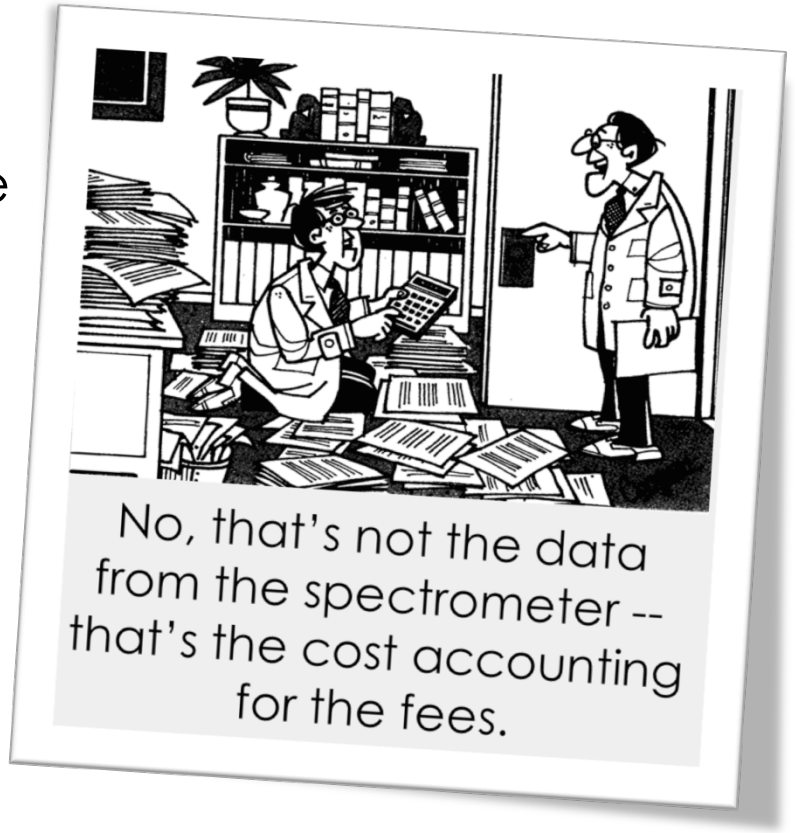
Access and Instrument Use Too Restricted

- Non-proprietary
  - Misconception that all work incurs equipment/facility fees.
    - Highlights need to improve outreach -- research published in public domain does not require full cost recovery.

- Proprietary
  - Access restricted/denied to highly subscribed instruments
    - Cannot interfere with federally funded, non-proprietary research.
    - Missing opportunities to apply cutting-edge tools to cutting-edge research.
  - Access too slow to stay in front of competition.
    - Expedited/rapid access limited by contracting and non-interference requirements.
  - Access may be limited even if industry funds or financially supports instrument operation.
    - No standard--policies vary between facilities.

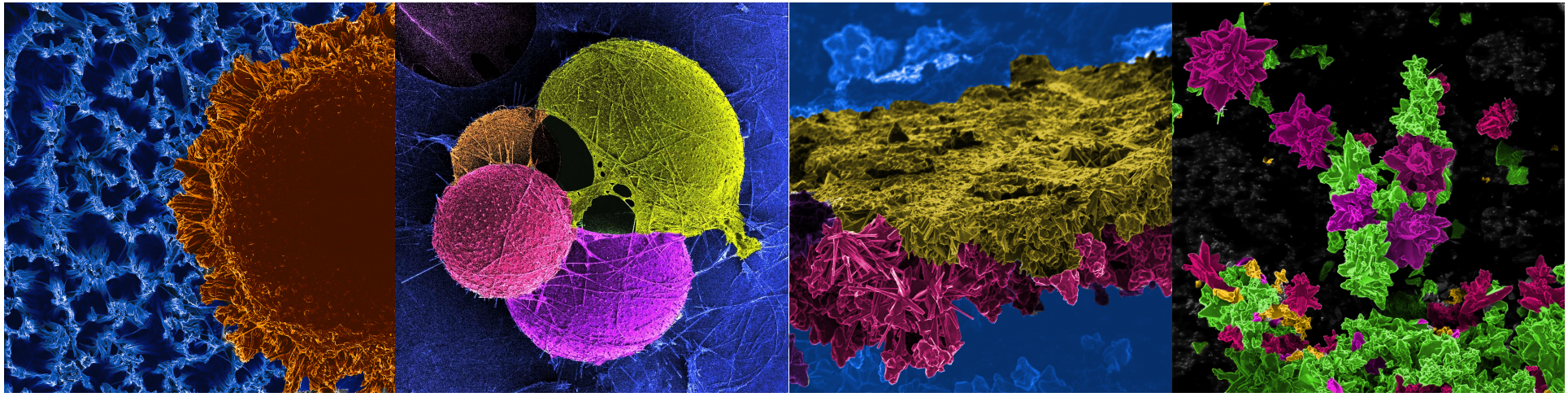
Contracting/Use Agreements Prohibitive

- Non-proprietary
  - Indemnification and IP issues a concern.
- Proprietary
  - Contracting process not responsive to fast-paced industry deadlines.
  - Advance payment requirement slow.
    - For small businesses, can be financially tough.
  - Facility, instrument, and staff fees seen as above market.
    - Often, fees at or below market depending on instrument rates.



So what can we do? Thoughts and suggestions

- For non-proprietary projects:
  - Modify policies to set aside 5-10% of high risk or long-shot ideas.
  - Convene subcommittee to evaluate NPUA terms to address IP and indemnity concerns.
  - Create expedited access mode ≈ TAP program.



Successful Approaches for Small Business and Industry

- TAP -- Technology Assistance Program (PNNL)

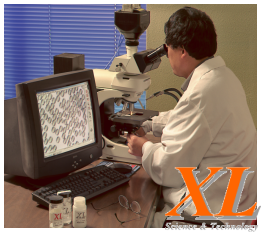
  - Sponsored by U.S. DOE.
  - Leverages PNNL's expertise in a variety of scientific disciplines.
  - Helps members of tech-based small business communities solve important challenges.
  - Provides several days of technology assistance free of charge.
  - Provides technology assistance once per fiscal year per company.
  - Eligible to receive a royalty-free license for technology developed through the program.
  - More than 500 companies supported to date.
  - 94% satisfaction rate.

TAP Examples (including EMSL use)

- UNIBEST International --Specializing in innovative agricultural testing and environmental sustainability. Helped proceduralize their analytical and laboratory methods.

- BaySpec - Advised in the development, final design and methodology for implementing the licensed ion funnel technology.

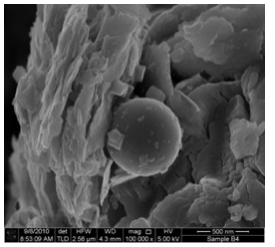
Portability™ Transportable Mass Spectrometer



- XL Sci-Tech - Assisted in the development and characterization of their microspheres.

- GeoTree Technologies Inc. – Provided imaging analysis to start-up company in 2010 on nano-geopolymer technology; company sold to Milliken in 2012 for $12 million based on results.

MILLIKEN INFRASTRUCTURE
A Milliken COMPANY



Thoughts and suggestions, continued

- For proprietary projects:
  - Modify policies to allow proof-of-principle experiments without full contracting mechanisms.
  - Allocate percentage of instrument time for rapid access.
  - Convene subcommittee to evaluate contracting requirements.
    - Consider graded approach?
      - E.g., allow blanket PO for small, proof of principle or small business use.
      - advance payment for long-term projects by large companies.
    - Draft universal contract acceptable at all labs.
      - Use addenda to specify scope of work and rates at different national laboratories.
    - Evaluate pros/cons of Proprietary Use Agreement (PUA) vs. subcontract process.
      - Evaluate Labs using PUA.

Acknowledgements

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